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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,421	06/24/2003	David S. Miller	020579U1/QUALP855US	4323
70797 7590 02/06/2008 Amin, Turocy & Calvin LLP 1900 E. 9th Street 24th Floor, National City Center Cleveland, OH 44114			EXAMINER SOL, ANTHONY M.	
			ART UNIT 2619	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/603,421

Applicant(s)

MILLER ET AL.

Examiner

Anthony Sol

Art Unit

2619

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-16 and 18-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-16, and 18-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

- Applicant's Amendment filed 11/21/2007 is acknowledged.
- Claims 1, 3, 16, 18, 29, and 30 have been amended.
- Claims 4 and 17 have been canceled.
- Claims 36-40 have been added.
- Claims 1-3, 5-16, and 18-40 remain pending.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 36-40 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Specifically, claim 36 recites a computer program product, but a review of the specification fails to show what a "product" is positively disclosed as.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 36-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 36-40 are rejected under 35 USC 112 second paragraph. Claim 36, which claims "computer-readable medium comprising computer code for..." is vague and indefinite because it is unclear how a medium can comprise instructions. A medium can have instructions stored on it, recorded on it, etc, but it is not clear how it can just comprise instructions. Claims 37-40 are also rejected since they depend from claim 36 and contain the same deficiency.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 36-40 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 36 is non-statutory because claim 36 recites "computer-readable medium comprising computer code for...", which are just instructions. A "medium" cannot comprise "instructions". A medium can have instructions stored on it, recorded on it, etc., but it cannot just comprise instructions. As a result the product, medium, which is just instructions, fails to fall within a statutory category under 101. Claims 37-40 are also rejected since they depend from claim 36 and contain the same deficiency.

Appropriate corrections are required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 3, 5, 16, 29, 30, 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,983,113 ("Asanuma") in view of U.S. Patent No. 5,638,361 ("Ohlson").

Regarding claims 1, 3, 5, 16, 29, 30, and 36,

Asanuma discloses, in an orthogonal CDMA system, receiving at a plurality of terminals a first pilot signal and deriving within each of the plurality of terminals, at least one transmit timing characteristic from the received first pilot signal (col. 6, line 62 to col. 7, line 5, *a **pilot signal** is exchanged between the mobile stations PS1 to PS3 and the base station before the start of communication, which triggers a synchronization establishing operation. At this time, the base station BS1 allocates a channel to each of the mobile stations PS1 to PS3 by the CDMA scheme. Namely, the phase offset of each of **PN codes** and **orthogonal codes** is specified. As a result, for example, channels ch1, ch2, and ch3 are allocated to the mobile stations PS1, PS2, and PS3,*

*respectively; col. 5, lines 1-7, The base stations BS1, BS2, . . . access the mobile stations existing in their own radio zones E1, E1, . . . by the **CDMA** scheme, using the radio frequency allocated to each of the base stations. In the CDMA communication, long codes and short codes are used as spread codes. For long codes, for example, 153600-chip PN codes are used. For short codes, for example, **64-chip orthogonal gold codes** are used; Abstract, With a CDMA mobile communication system of the present invention, the phase difference sensing circuit of the base station senses the phase **difference with respect to a reference phase** from the cross-correlation value of the up-link channel signals coming from mobile stations and sends timing control information for compensating the phase difference closer to zero to the mobile stations).*

Asanuma further discloses transmitting, at an assigned time, a second pilot signal from each of the plurality of terminals in accordance with the derived at least one transmit timing characteristic (col. 7, lines 6-9, *The base station BS1 senses the phase **difference** between the reception phase of the orthogonal code included in the **pilot signal coming from the individual mobile stations PS1 to PS3** and the **orthogonal code generated at the base station**).*

Asanuma still further discloses receiving a control signal providing instructions to adjust the at least one transmit timing characteristic and adjusting, responsive to the control signal, the at least one transmit timing characteristic (col. 7, lines 10-18, *On the basis of the sense result of the phase difference, initial timing control information is created. The initial timing control information is transmitted to the corresponding*

*mobile stations PS1 to PS3 via down-link channels. **When receiving the initial timing control information** from the base station BS1, each of the mobile stations PS1 to PS3 **sets the amount of delay** in the delay circuit of the modulation circuit 46 **on the basis of the control information** to prepare for the start of communication).*

Asanuma does not disclose that the first pilot signal is received from a satellite and generated at a ground station. Asanuma further does not disclose that the second pilot signal is transmitted to the ground station through the satellite. Asanuma still further does not disclose that the control signal is received from the satellite and generated at the ground station.

Ohlson discloses a **satellite** network communication system in which a plurality of subscriber handset terminals communicate with a ground hub station (claimed ground station) on traffic frequency channels using spread spectrum **orthogonal CDMA** transmissions. The hub station includes a control generator for generating a net entry control channel for communicating synchronization correction signals (**timing, frequency and power**) to subscriber handset terminals and a return link receiver. Each subscriber handset terminal has a subscriber unit control channel receiver for **receiving the control channel synchronization correction signals** and a subscriber unit return link transmitter connected to receive the synchronization correction signals **so that signals from all subscriber handset terminals arrive at the hub station in time, power and frequency synchronism**. The subscriber unit return link transmitter includes frequency hopped spread spectrum carrier such that none of the signals occupies the same frequency bin at the same time. The net

entry control channel transmits small time and frequency correction signals to each of the plurality of subscriber handset terminals (Abstract). *In other words, the ground station generates correction signals (claimed generated at the ground station) and the satellite relays signals between the subscriber units and the hub station.*

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to modify the orthogonal CDMA communication system of Asanuma to be used in a satellite communication system which generates correction signals at the ground hub station and transmit the correction signal through the satellite to the subscriber units as taught by Ohlson. One skilled in the art would have been motivated to make the combination so that a subscriber can place telephone calls almost anywhere on the Earth, using a portable handset (Ohlson, col. 1, 21-24). As is well known, such a system would need satellites to overcome geographical obstructions such as mountains.

8. Regarding claim 34,

Memory is inherently part of the terminal device/mobile station.

9. Claims 2, 8, 20, 31 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Asanuma in view of Ohlson, and further in view of Pub. No. US 2004/0147222A1 ("Walsh").

Regarding claims 2, 8, 20, 31, and 37,

Asanuma and Ohlson do not explicitly disclose a reverse uplink receiver beam

width of approximately 0.5°.

Walsh discloses a beam width of 0.5 degrees (para. 48).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to modify the reverse uplink receiver of Asanuma and Ohlson combination to use 0.5 degrees beam width as disclosed by Walsh. One skilled in the art would have been motivated to make the combination to use a narrow beam width for higher power and frequency reuse as is well known in the art.

10. Claims 6, 7, 9-14, 18, 19, 21-28, 32, 33, 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asanuma in view of Ohlson, and further in view of U.S. Patent No. 7,151,944 B2 ("Hashem").

Regarding claims 6, 7, 18, and 19,

Asanuma and Ohlson do not disclose a pre-selected fractional part of a chip period such as one-eighth of a chip or less.

Hashem discloses tracking commands which make use of the setting of the eighth bit to choose between $\frac{1}{4}$ and $\frac{1}{8}$ chip (col. 13, lines 4-6; col. 15, lines 26-29).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to modify the orthogonal CDMA system of Asanuma and Ohlson combination to bring the alignment to within $\frac{1}{8}$ of a chip. One skilled in the art would have been motivated to make the combination to achieve time alignment synchronization (Hashem, col. 13, lines 1-12).

11. Regarding claims 9, 12, 21, 22, 25, 32, 33, 38 and 39,

Asanuma and Ohlson do not disclose explicitly that the control signal directs the terminal to advance or retard its transmit timing.

Hashem discloses that the transmission timing alignment function 40 is coupled to the local clock function 42 and 41 and adds or subtracts timing offsets to the timing reference signal to alter the transmission timing (col. 16, lines 5-8).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to modify the orthogonal CDMA system of Asanuma and Ohlson combination to include a timing alignment function as taught by Hashem. One skilled in the art would have been motivated to make the combination to achieve time alignment synchronization (Hashem, col. 13, lines 1-12).

12. Regarding claims 10, 11, 13, 14, 23, 24, 26 and 27,

Asanuma and Ohlson do not explicitly disclose advancing, adjusting, or retarding by a predetermined or specified amount.

Hashem discloses a range of changes in timing spanning from $1/8^{\text{th}}$ chip to 16 microseconds (col. 16, lines 15-18).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to modify the orthogonal CDMA system of Asanuma and Ohlson combination to adjust timing by a specified amount as taught by Hashem. One skilled in the art would have been motivated to make the combination to achieve time alignment synchronization (Hashem, col. 13, lines 1-12).

13. Regarding claim 28,

Asanuma shows in fig. 3, a clock output 48 connected to a code modulator 46, and a control input 43 connected to a signal receiver 41.

14. Claims 15, 35 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asanuma in view of Ohlson, and further in view of U.S. Patent No. 6,449,290 B1 ("Willars").

Regarding claims 15, 35, and 40,

Asanuma and Ohlson do not disclose that the control signal directs the terminal to adjust its transmission frequency.

Willars discloses that in the CDMA cellular communications system, each base station normally transmits a pilot carrier signal in each of its sectors. This pilot signal is used by the mobile stations to obtain initial system synchronization and to provide robust time, **frequency** and phase **tracking** of the base station transmitted signals during a so called air interface chip synchronization phase (col. 2, lines 36-44).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to modify the orthogonal CDMA system of Asanuma and Ohlson combination to use control signals to adjust frequency of the terminal as taught by Willars. One skilled in the art would have been motivated to make the combination to achieve tracking of the base station (Willars, col. 2, lines 36-44).

Response to Arguments

15. Applicant's arguments with respect to claims 1-35 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Sol whose telephone number is (571) 272-5949. The examiner can normally be reached on M-F 7:30am - 4pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on (571) 272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


2/1/08
WING CHAN
SUPERVISORY PATENT EXAMINER

AMS

2/1/2008